

REMARKS

The present Amendment amends claims 1-5 and 7 and leaves claim 6 unchanged. Therefore, the present application has pending claims 1-7.

Claims 1-7 stand rejected under 35 USC §103(a) as being unpatentable over Amano (U.S. Patent No. 5,226,012) in view of Sharma (U.S. Patent No. 6,813,275). This rejection is traversed for the following reasons. Applicants submit that the features of the present invention as now more clearly recited in claims 1-7 are not taught or suggested by Amano or Sharma whether taken individually or in combination with each other as suggested by the Examiner. Therefore, Applicants respectfully request the Examiner to reconsider and withdraw this rejection.

Amendments were made to the claims to clarify that the present invention is directed to a packet data processing apparatus, a packet data processing program and a packet data processing method for processing a packet data stream received through a packet switched network. According to the present invention the packet data processing apparatus includes a network interface for receiving packet data constituting the packet data stream from the packet switched network, a buffer for temporarily storing the packet received by the network interface, a processing unit for sequentially reading and processing the packet data stored in the buffer and a monitoring unit for monitoring a state of the buffer periodically.

Unique according to the present invention is that the monitoring unit includes a underflow or overflow processing part which periodically judges whether the buffer is in a state of underflow or overflow, and if the buffer is in the state of underflow or

overflow, performs a process to have an amount of data stored in the buffer to be equivalent to a predetermined amount for absorbing transmission fluctuation and a synchronous processing part which makes the processing unit skip at least one packet data to read and processed next by the processing unit, if a number of packet data stored in the buffer shows a tendency of increasing from a predetermined number of packet data, successively a given number of times and which makes the processing unit suspend operation during a period of time during reading and processing at least one packet data, if the number of the packet data stored in the buffer shows a tendency of decreasing from the predetermined number of packet data successively the given number of times.

By use of the above described features of the present invention it is possible to prevent underflow or overflow of the buffer, thereby attaining the function and effect to reduce long interruptions of a media signal during realtime communication caused by buffer underflow or overflow condition.

The above described features of the present invention now more clearly recited in the claims whether taken individually or in combination with each other. Particularly, the above described features of the present invention as now more clearly recited in the claims are not taught or suggested by Amano or Sharma whether taken individually or in combination with each other as suggested by the Examiner.

Amano describes a technique for resetting data stored in FIFO buffer by detecting generation of overflow or underflow and preventing data read out from the FIFO buffer until the data amount initially stored is stored in the FIFO buffer.

Sharma discloses a technique for skipping data when the data is being stored in the FIFO buffer, the amount of data which exceeded an ideal data amount to be stored in the FIFO buffer is skipped.

In contrast, the present invention provides an underflow/overflow processing part which periodically monitors whether the buffer is in a state of underflow or overflow, and if it is judged to be in a state of underflow or overflow, performs a process so that the amount of data to be stored in the buffer is a predetermined amount of data for absorbing transmission fluctuation. The present invention also provides a synchronous processing part, provided separately from the underflow/overflow processing part that makes the processing unit skip at least one packet data to be read and processed next by said processing unit, if a number of the packet data stored in said buffer shows a tendency of increasing from a predetermined number of packet data, successively a given number of times and which makes said processing unit suspend operation during a period of time required for reading and processing at least one packet data, if the number of the packet data stored in said buffer shows a tendency of decreasing from the predetermined number of data, successively the given number of times.

Amano and Sharma do not teach or suggest the above described configuration. Particularly, both Amano and Sharma do not teach or suggest the above described features of the present invention regarding the underflow or overflow processing part and the synchronous processing part as recited in the claims.

Thus, both Amano and Sharma fail to teach or suggest an underflow or overflow processing part which periodically judges whether the buffer is in a state of underflow or overflow, and if the buffer is in the state of underflow or overflow, performs a process to have an amount of data stored in the buffer to be equivalent to a predetermined amount of data for absorbing transmission fluctuation as recited in the claims.

Further, both Amano and Sharma fails to teach or suggest a synchronous processing part which makes the processing unit skip at least one packet data to be read and processed next by the processing unit, if the number of the packet data stored in the buffer shows a tendency of increasing from a predetermined number of packet data successively a given number of times, and which makes the processing unit suspend operation during a period of time required for reading and processing at least one packet data, if the number of packet data stored in the buffer shows a tendency of decreasing from the predetermined number of packet data successively the given number of times as recited in the claims.

Therefore, both Amano and Sharma suffer from the same deficiencies relative to the features of the present invention as now more clearly recited in the claims and as such when combined does not teach or suggest the features of the present invention. Accordingly, reconsideration and withdrawal of the 35 USC §103(a) rejection of claims 1-7 as being unpatentable over Amano and Sharma is respectfully requested.

The remaining references of record have been studied. Applicants submit that they do not supply any of the deficiencies noted above with respect to the references utilized in the rejection of claims 1-7.

In view of the foregoing amendments and remarks, applicants submit that claims 1-7 are in condition for allowance. Accordingly, early allowance of claims 1-7 is respectfully requested.

To the extent necessary, the applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C., Deposit Account No. 50-1417 (566.41388X00).

Respectfully submitted,

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